

**PATENT CLAIMS**

1. (Currently amended) A method for manufacturing a cooling element (1) to be used in the structure of a ~~furnace used in metal processes, such as a flash smelting furnace, a blast furnace, an electric furnace or other metallurgical reactor~~, said cooling element comprising a copper housing (2) made of one single piece, in which housing there is formed a channel system (3) for the circulation of the cooling medium, lining elements (4) made of fireproof material, said housing and lining element including means for connecting them together, characterized in that the method comprising connecting the lining element (4) and the housing (2) are connected so that the lining element (4) can move in the vertical direction with respect to the housing (2).
2. (Currently amended) A method according to claim 1, characterized in that further comprising in the surface (8) of the housing, arranging there are arranged vertical grooves (5), in which grooves the lining elements (4) are placed.
3. (Currently amended) A method according to claim 1 or 2, characterized in that further comprising in the lining element (4) there is arranged arranging a bracket-like edge part (6) that fits in the groove (5) provided in the housing.
4. (Currently amended) A method according to claim 2 or 3, characterized in that further comprising in the vertical groove (5) arranged on the surface (8) of the housing, there are placed placing lining elements along the whole width of the groove, so that the lining elements are located on top of each other.
5. (Currently amended) A method according to claim 2, 3 or 4, characterized in that further comprising narrowing the groove (5) arranged in the housing (2) is narrowed from the groove bottom (7) towards the surface (8) of the housing.

6. (Currently amended) A method according to claim 2, ~~3, 4 or 5, characterized in that~~ wherein the width of the groove bottom ( $\text{7}$ ) is essentially 55 — 100 millimeters.
7. (Currently amended) A method according to claim 2, ~~3, 4, 5 or 6, characterized in that~~ wherein the width of the groove orifice ( $\text{9}$ ) is essentially 50 — 95 millimeters.
8. (Currently amended) A method according to claim 2, ~~3, 4, 5, 6 or 7, characterized in that~~ wherein the depth of the groove ( $\text{5}$ ) is essentially 30 — 60 millimeters.
9. (Currently amended) A method according to ~~any of the claims 2 — 8, characterized in that the Claim 2, further comprising placing the cooling element (1)~~ is placed in the furnace so that the grooves ( $\text{5}$ ) are positioned in the vertical direction.
10. (Currently amended) A method according to ~~any of the preceding claims, characterized in that Claim 2, further comprising narrowing the bottom part (10) of the housing (2) is narrowed downwards.~~
11. (Currently amended) A method according to ~~any of the preceding claims, characterized in that Claim 2, further comprising connecting the lining elements (4) are connected to the housing (2) before the cooling element is installed in the furnace.~~
12. (Currently amended) A method according to ~~any of the claims 1 — 10, characterized in that Claim 1, further comprising connecting the lining elements (4) are connected to the housing (2) after the housing is 20 installed in the furnace.~~
13. (Currently amended) A method according to ~~any of the preceding claims, characterized in that Claim 1, further comprising in the depth direction of the cooling element[,] extending the lining elements (4) extend to outside the housing (2).~~
14. (Currently amended) A method according to ~~any of the preceding claims, characterized in that Claim 1, further comprising the lining elements (4) completely cover~~

covering with the lining elements that surface (8) of the housing (2) that gets into contact with the melt.

15. (Currently amended) A method according to ~~any of the preceding claims;~~ ~~characterized in that~~ Claim 1, further comprising interconnecting the cooling elements (1) are interconnected at the junctions (11) provided in the elements.

16 (Currently amended) A method according to claim 15, ~~characterized in that in~~ further comprising in the auxiliary groove (12) formed at the junction (11) ~~there are placed~~ placing lining elements in the vertical direction.

17. (Currently amended) A cooling element (1) to be used in the structure of a furnace used in metal processes, such as a flash smelting furnace, a blast furnace, an electric furnace or other metallurgical reactor, said cooling element comprising a copper housing (2) made of one single piece, in which housing there is formed a channel system (3) for the circulation of the cooling medium, lining elements (4) made of fireproof material, said housing and lining element including means for connecting them together, ~~characterized in that~~ the lining element (4) and the housing (2) are being connected so that the lining element (4) is movable in the vertical direction with respect to the housing (2).

18. (Currently amended) A cooling element according to claim 17, ~~characterized in that~~ wherein on the surface (8) of the housing there are arranged vertical grooves (5), in which the lining elements (4) are placed.